Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A method for the attachment of cells, viruses, proteins, or polypeptides for growth or biological analysis comprising the steps of:

conjugating a polypeptide to an activated end group of a triblock or diblock copolymer containing [[a]] PEO- and PPO- ~~containing triblock and diblock copolymer comprising an activated end group~~ to form a polypeptide-conjugated copolymer;

contacting a hydrophobic surface with said polypeptide-conjugated copolymer for a time sufficient for the PPO- block of said polypeptide-conjugated copolymer to be adsorbed by the hydrophobic surface, thereby forming a polypeptide-conjugated copolymer-coated surface; and

contacting the polypeptide portion of said polypeptide-conjugated copolymer-coated surface with at least one cell, virus, protein, or polypeptide such that said cell, virus, protein, or polypeptide adheres to said polypeptide-conjugated copolymer-coated surface.

2. (original) A method as in claim 1 wherein the step of conjugating a polypeptide to a PEO- and PPO- containing triblock or diblock copolymer comprising an activated end group comprises covalently bonding said polypeptide to said activated end group.

3. (original) A method as in claim 1 wherein the step of conjugating a polypeptide to a PEO- and PPO- containing triblock or diblock copolymer comprising an activated end group comprises covalently bonding the terminal amine group of said polypeptide to said activated end group.

4. (original) A method as in claim 1 further comprising the step of forming the PEO- and PPO- containing triblock and diblock copolymer comprising an activated end group by reacting 4-nitrophenylchloroformate with an unmodified PEO- and PPO- containing triblock or diblock copolymer.

5. (original) A method as in claim 4 further comprising the step of purifying said PEO- and PPO- containing triblock and diblock copolymer comprising an activated end group via precipitation and filtration.

6. (original) A method as in claim 4 further comprising the step of purifying said PEO- and PPO- containing triblock and diblock copolymer comprising an activated end group via chromatography.

7. (original) A method as in claim 4, wherein the amount of 4-nitrophenylchloroformate used in the reaction is three times the amount of said unmodified PEO- and PPO- containing triblock or diblock copolymer.

8. (original) A method as in claim 1 further comprising the step of activating the end group of a PEO- and PPO- containing triblock and diblock copolymer by reacting a PEO- and PPO- containing triblock or diblock copolymer with N-hydroxysuccinylchloroformate, thereby forming a PEO- and PPO- containing triblock and diblock copolymer comprising an activated end group.

9. (original) A method as in claim 8 further comprising the step of purifying said PEO- and PPO- containing triblock and diblock copolymer comprising an activated end group via precipitation and filtration.

10. (original) A method as in claim 8 further comprising the step of purifying said PEO- and PPO- containing triblock and diblock copolymer comprising an activated end group via chromatography.

11. (original) A method as in claim 8, wherein the amount of N-hydroxysuccinylchloroformate, used in the reaction is three times the amount of said PEO- and PPO- containing triblock or diblock copolymer.

12. (original) A method as in claim 1 further comprising the step of activating the end group of a PEO- and PPO- containing triblock and diblock copolymer by reacting a PEO- and PPO- containing triblock or diblock copolymer with tosylchloride, thereby forming a PEO- and PPO- containing triblock and diblock copolymer comprising an activated end group.

13. (original) A method as in claim 12 further comprising the step of purifying said PEO- and PPO- containing triblock and diblock copolymer comprising an activated end group via precipitation and filtration.

14. (original) A method as in claim 12 further comprising the step of purifying said PEO- and PPO- containing triblock and diblock copolymer comprising an activated end group via chromatography.

15. (original) A method as in claim 12 wherein the amount of tosylchloride, used in the reaction is three times the amount of said PEO- and PPO- containing triblock or diblock copolymer.

16. (original) A method as in claim 1 wherein said polypeptide has a structure that allows it to interact with a receptor site or a cell adhesion molecule on the surface of a cell.

17. (currently amended) A method as in claim 1 wherein said polypeptide has a structure that allows it to interact with the binding site of ~~a biomolecule~~ the cells, viruses, proteins, or polypeptides.

18. (currently amended) A method as in claim 1 wherein said polypeptide has a structure that allows it to interact with glycoproteins or ~~other biomolecules of a virus~~ viruses.

19. (original) A method as in claim 1 wherein said polypeptide is selected from the group consisting of fragments of extra cellular matrix proteins, adhesion proteins, growth factors, differentiating factors, mitogens receptors, transmembrane proteins, and combinations thereof.

20. (currently amended) A method for the attachment of cells for growth or biological analysis comprising the steps of:

a) conjugating a natural or recombinant biomolecule to an activated end group of a triblock or diblock copolymer containing [[a]] PEO- and PPO ~~containing triblock or diblock copolymer comprising an activated end group~~ to form a biomolecule-conjugated copolymer;

b) contacting a hydrophobic surface with said biomolecule-conjugated copolymer for a time sufficient for the PPO- block of said biomolecule-conjugated copolymer to be adsorbed onto the hydrophobic surface thereby forming a biomolecule-conjugated copolymer-coated surface; and

c) contacting the natural or recombinant biomolecule portion of said biomolecule-conjugated copolymer-coated surface with at least one cell such that said cell adheres to the biomolecule-conjugated copolymer-coated surface.

21. (original) The method according to claim 20 wherein the biomolecule is selected from the group consisting of natural or recombinant proteins, enzymes, peptides, amino acids, and nucleic acids.

22. (original) The method according to claim 20 wherein the biomolecule is selected from the group consisting of natural or recombinant extracellular matrix proteins, adhesive proteins, and combinations thereof.

23. (original) The method according to claim 20 wherein the biomolecule is selected from the group consisting of natural or recombinant growth factors, mitogens, growth peptides, differentiating factors and all combinations thereof.

24. (original) The method according to claim 20 wherein the biomolecule is selected from the group consisting of natural or synthetic sugars, carbohydrates, polysaccharides and combinations thereof.

25. (original) The method according to claim 20 wherein the biomolecule is selected from the group consisting of natural or synthetic lipids, sterols, fatty acids and combinations thereof.

26. (original) The method according to claim 20 wherein the biomolecule is selected from the group consisting of natural or synthetic antibodies, antibody fragments, receptors, fragments of receptors, transmembrane proteins, fragments of transmembrane proteins and combinations thereof.

27. (original) The method according to claim 20 wherein said method further comprises the step of activating the end group of the copolymer by treatment with 4-nitrophenylchloroformate followed by 2-(2-pyridyldithio)ethylamine prior to conjugating the copolymer to the biomolecule.

28. (original) The method according to claim 20 wherein the biomolecule contains a thiol.

29. (currently amended) The method according to claim ~~28~~ 20 wherein the copolymer is represented by the formula:

~~(HO-PEO)$_e$(HO-PEO)$_d$(PPO)$_b$~~

R-O-(PEO)$_c$(PPO)$_b$(PEO)$_d$-R

where (b) is an integer from 1 to 3, (c + d) is an integer between ~~0 and 5~~ 1 and 6, ~~and d is at least 1,~~ where R is a reactive group that is stable in water,

where PEO is of the formula:

$$-(-C_2H_4-O-)_u-$$

where (u) is greater than 50, where PPO is of the formula

$$-(-C_3H_6-O-)_v-$$

where (v) is greater than 25.

30. (original) The method according to claim 20 wherein the biomolecule has been artificially thiolated.

31. (original) The method according to claim 20 wherein the biomolecule is coupled to the copolymer via a disulfide linkage.

32. (original) The method according to claim 20 wherein the biomolecule-conjugated copolymer-coated surface is contacted with a cell.

33. (currently amended) A method for the attachment of cells or viruses to a surface for growth or biological analysis comprising the steps of:

a) obtaining a PEO- and PPO- containing triblock or diblock copolymer, wherein said copolymer comprises an end group;

b) activating the end group of said copolymer to form an activated end group;

c) conjugating a thiol containing biomolecule to the activated end group of said copolymer to from a biomolecule-conjugated copolymer;

d) contacting a hydrophobic surface with the PPO- block of said biomolecule-conjugated copolymer to form a biomolecule-conjugated copolymer-coated surface; and

e) contacting the biomolecule-conjugated copolymer-coated surface with a cell or virus such that said cell or virus adheres to the biomolecule portion of the biomolecule-conjugated copolymer-coated surface.

34. (original) A method according to claim 33 wherein the thiol containing biomolecule is selected from the group consisting of proteins, peptides, amino acids and combinations thereof.

35. (original) A method according to claim 33 wherein the thiol containing biomolecule is selected from the group consisting of natural or synthetic extracellular proteins, antibodies, antibody fragments, cell adhesion molecules, fragments of a cell adhesion molecules, growth factors, cytokines, peptides, sugars, carbohydrates, polysaccharides, lipids, sterols, fatty acids and combinations thereof.

36. (original) The method according to claim 33 wherein the activated end group is selected from the group consisting of hydrazino, thiopyridyl, tyrosy, maleimide, 2-pyridyl disulphide, 5-nitro-2-pyridyl disulphide, 4- pyridyl disulphide, 5-carboxy-2-pyridyl disulphide, and the nitrogen oxides of 2-pyridyl disulfide, 5-nitro-2-pyridyl disulfide, 4-pyridyl disulfide, and 5-carboxy-2-pyridyl disulphide.

37. (original) The method according to claim 33 wherein the biomolecule is artificially thiolated.

38. (original) The method according to claim 33 wherein the biomolecule is coupled to the copolymer via a disulfide linkage.

39. (currently amended) The method according to claim 33 wherein the copolymer is represented by the formula:

~~$(HO\text{-}PEO)_e(HO\text{-}PEO)_d(PPO)_b$~~

$HO\text{-}(PEO)_c(PPO)_b(PEO)_d\text{-}H$

where (b) is an integer from 1 to 3, (c + d) is an integer between ~~0 and 5~~ 1 and 6, and ~~d is at least 1,~~

where PEO is of the formula:

$$-(-C_2H_4\text{-}O\text{-})_u-$$

where (u) is greater than 50, where PPO is of the formula

$$-(-C_3H_6\text{-}O\text{-})_v-$$

where (v) may is greater than 25.

40. (original) The method according to claim 33 wherein the biomolecule-conjugated copolymer-coated surface is contacted with a cell.

41. (original) The method according to claim 33 wherein the biomolecule-conjugated copolymer-coated surface is contacted with a virus.